What Is Claimed Is:

~~Patent Claims~~

1. A process for controlling the use of satellite transmission capacity for the substitution of out-of-order data lines in terrestrial networks, alternative routing via satellite being initiated and monitored and assignment being effected in the case of alternative routing, characterized in that

   in the case of alternative routing, controllers (7) allocated to master and slave terminals (16 and 16') and controlled by software take over control automatically, decentrally and locally, and detect the need for alternative routing based on the analysis of a data control signal from the data transmission device of the user; and

   the occupancy state of the satellite transmission capacity is monitored locally and automatically via software control, and the alternative routing operations are carried out, controlled by software, via the respective decentralized, local and intelligent control unit (7).

2. The process as recited in Claim 1, characterized in that

   the necessary control software is stored in the respective local control unit (7);

   the components of the terminal (16 and 16', respectively) are thereby controlled and monitored in the waiting state and in the case of alternative routing; and

   the stored software reacts to control signals of a customer data device without, however, influencing the customer data itself.

3. The process as recited in one of Claims 1 or 2, characterized in that

   the automatic and decentralized control of the use of satellite transmission capacity for the substitution of out-of-order lines in terrestrial networks and the alternative routing via a second transmission medium, including automatic monitoring of capacity use, are effected via software control, the occupancy state of the satellite transmission capacity being monitored locally and the failure of the terrestrial call connection being detected locally.

4. The process as recited in one of Claims 1 through 3, characterized in that

a passive hub (4) is used for collecting connection data and preconfiguring the individual terminals (16 and 16') during initial installation and if there is a change in the network layout, the passive hub (4) being connected to the terminals (16, 16') either via a telephone-modem link, via an ISDN connection, via a GSM connection with modem or via a satellite connection within the capacity available in the network.

5. The process as recited in one of Claims 1 through 4, characterized in that

all satellite terminals (16 and 16') are synchronized by integrating a DCF77 receiver in each terminal, the standard time being used as the system time for clocking.

6. The process as recited in one of Claims 1 through 5, characterized in that

the transmitter carrier of the affected satellite modem is switched on in the case of alternative routing and is then also received by all other, non-affected terminals in the network;

the transmission capacity of the asynchronous overhead of the satellite modem is used for the transmission of destination addresses; and

even when the terrestrial transmission path is out of order, there is free-running alternative routing via a different medium.

7. A circuit arrangement for implementing the process as recited in one of Claims 1 through 6, characterized in that

a master terminal (16) and a slave terminal (16), each connected to a satellite modem (15), are connected to the terrestrial network (1) via independent, software-controlled, decentrally disposed, local and intelligent control units (7) with an associated modem (5) via routers (6), to which the customer devices (8) and terminals (9) are connected.

8. The circuit arrangement as recited in Claim 7, characterized in that

connected via a modem (5) to the terrestrial network (1) is a hub (4) equipped with software which communicates via the terrestrial connection with the individual stored-program controllers (7) of the terminals (16, 16'), both the stored-program controllers (7) and the hub (4) having their own addressing system.

9. The circuit arrangement according to the preamble of Claim 7, characterized in that

the hub (4) registers the use of a plurality of transmission pools;

the hub (4) has knowledge about the individual transmission channels (such as frequencies and data rates) as well as about their assignment to the respective pools;

in the case of a fault, the stored-program controllers (7) transmit the modem parameters to the hub (4) for initial fault location, a carrier pool being equipped with a plurality of satellite transmission channels (f_n - f_{n+1}) of a defined data rate.

10. The circuit arrangement as recited in Claim 9, characterized in that

the transmission channels are used according to the principle of first come, first served;

as an additional feature, there is the reserving of transmission channels or prioritization in the use of the transmission channels, as well as the centralized online monitoring of the pool use; and

all connections to be alternatively routed are symmetrical duplex channels with identical
data rates in the send and receive directions.

11. The circuit arrangement as recited in one of Claims 8 through 10, characterized in that

the individual transmission channels are combined into channel pairs having the mid-frequencies (f_n/f_{n+1} (n=l, 3, 5..)).

12. The circuit arrangement as recited in one of Claims 8 through 11, characterized in that

the stored-program controllers (7) are each connected via a line (13) to a satellite modem (15), and also to control lines (14 and 17);

the two modems (15) are each in communication with a satellite antenna (18), the satellite antennas (18) being in communication with each other via a satellite (20) by way of defined carrier frequencies (19).

13. The circuit arrangement as recited in one of Claims 8 through 12, characterized in that

one terminal as backup terminal (16 or 16') is composed of a satellite external unit, including an antenna (18), a carrier (19) and a satellite (20), and also of a connection to the internal unit, and of the internal unit with the satellite modem (15) and the stored-program controller (7) as well as a connection of the stored-program controller (7) to the terrestrial switched network (1).

14. The circuit as recited in Claim 8 or 9, characterized in that

the hub (4) is composed of a personal computer which is connected via an interface card to the terrestrial network (1) and, if applicable, is connected to other networks for the forwarding of the connection data for purposes of tariffing/invoicing.

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